DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 6-8, 10-12, 15-18, 20-22, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al (US Patent Number 5574279) in view of Yasuda et al (US Patent Number 5753911).

In regards to claims 1, 21, and 24, Ikeda et al discloses an electrostatic actuator and method for a contact probe storage device (Fig. 3B) comprising: a first electrode (Fig. 3A, element 3); a second electrode (Fig. 3A, element 7) supported in a predetermined spaced essentially parallel relationship with the first electrode (Fig. 3A-B, 7 is parallel with 3) by resilient members (Fig. 3, element 8); and a probe (Fig. 3 element 12) configured to engage a medium in which data indicative topographical features are formed (Column 4, lines 41-45), the probe being mounted on the second electrode so as to extend away from the first electrode (Fig. 3A-B, element 7 space apart 4 from the first electrode 3), wherein only one of the first and second electrodes is configured to have a voltage selectively applied thereto to attract the first and second electrodes toward one another and move the probe away from the medium (Column 4, lines 56-67); wherein the second electrode is supported by a plurality of flexible

extension members (Fig. 3A, element 9). However, Ikeda et al does not disclose wherein first pair of the flexible extensions is configured to apply a voltage to the second electrode.

In the same field of endeavor, Yasuda et al discloses wherein a first pair of the flexible extensions are configured to apply a voltage to the second electrode (Column 1, lines 50-59, mention that an invention of having the electrostatically drive a plate portion supported by the torsion bar has been proposed, the torsion bar is like element 9 of Ikeda). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the electrostatic actuator of Ikeda et al to have the flexible extension applied voltage to the second electrode as suggested by Yasuda et al. The motivation for doing so would have been simplify the microactuator.

In regards to claims 2 and 22, Ikeda does not but Yasuda et al discloses wherein a capacitance varies with the displacement of the probe with respect to the medium (Column 2, lines 3-19). The motivation is the same as claim 1 above.

In regards to claims 6 and 26, Ikeda discloses an electrostatic actuator as set forth in claim 1, wherein the flexible extension members are made of an electrically conductive material (Column 5, lines 63-67; silicon is a conductive metal).

In regards to claims 7 and 27, Ikeda discloses an electrostatic actuator and method, wherein the flexible extension members each have an electrically conductive portion (Column 5, lines 63-67).

In regards to claims 8 and 15, Ikeda et al discloses an electrostatic actuator arrangement for a contact probe storage device comprising: a probe (Fig. 11, element 54) configured to engage a medium in which data indicative topographical features are formed (It is inherent that marks will be in formed in form of bits on the medium); and linear acting electrostatic motor means for selectively drawing the probe out of engagement with the medium (Fig. 11, in z direction; Column 9, lines 8-40), the flexible support means for supporting the linear acting electrostatic motor (Figs. 3A, element 9). Ikeda et al does not but Yasuda et al discloses capacitor means for sensing displacement of a probe with respect to the medium which displacement is induced by engagement between the probe and a data indicative topographical feature (Column 2, lines 1-45). The motivation is the same as claim 1 above.

In regards to claim 10, Ikeda et al discloses an electrostatic actuator as set forth in claim 8, wherein a first electrode; and a second electrode supported in a predetermined spaced essentially parallel relationship with the first electrode (Fig. 3A-B) and the linear acting electrostatic motor means (column 9, lines 8-40). Ikeda et al does not but Yasuda et al discloses an actuator comprises of the capacitor means (Column 1, lines 2-19). The motivation is the same as claim 1 above.

In regards to claims 11, Ikeda discloses an electrostatic actuator, wherein the second electrode is supported by a plurality of flexible extension members (Fig. 3, element 9).

In regards to claim 12, Ikeda et al discloses an electrostatic actuator arrangement, wherein the flexible support means further comprise means for establishing an electrical connection with the second electrode (Fig. 3).

In regards to claim 16, Ikeda et al discloses a method as set forth in claim 15, further comprising: forming a probe which is supported on the second electrode and which is configured to engage a medium in which data indicative topographical features are formed; and forming spacers which support the medium in a predetermined spatial relationship with the probe (Fig. 3).

In regards to claim 17, Ikeda et al discloses a method as set forth in claim 15, comprising; using the flexures to support the second electrode in the predetermined spaced essentially parallel relationship with the first electrode (Fig. 3).

In regards to claim 18, Ikeda et al discloses a method as set forth in claim 17, further comprising forming the flexures to be electrically conductive or to have an electrically conductive portion (Column 5, lines 63-67).

In regards to claim 20, Ikeda et al discloses a method as set forth in claim 16, further comprising configuring the first and second electrodes to form a capacitor wherein the change in distance between the first and second electrodes is measurable and usable as a signal indicative of the probe having engaged a data indicative topographical feature on the medium (Column 9 and 10; shows that the probe is engage by tunneling since it is a STM system but with Reid AFM system the probe is engage by voltage creating capacitor).

Claims 4, 5, 13, 14, 19, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al in view of Yasuda et al as applied to claims 1 and 21 above, and further in view of Reid (US Patent Number 5856672).

In regards to claims 4, Ikeda et al and Yasuda et al disclose everything in claim 1. However does not disclose wherein a heater disposed on the second electrode.

In the same field of endeavor, Reid discloses wherein a heater disposed on the second electrode (Column 4, lines 56-60 and Column 6, lines 48-53). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the actuator of Ikeda et al and Yasuda et al to have a heater on disposed of the second electrode as suggested by Reid. The motivation would have been to convert STM to an AFM system.

In regards to claims 5, 14 and 25, Ikeda et al and Yasuda et al do not but Reid discloses an electrostatic actuator as set forth in claim 4, further comprising a heater

wherein the heater is electrically isolated form the second electrode and electrically connected with a second pair of the flexible extensions which are configured to supply electrical current to the heater (Fig. 1d, element 125 heater; Column 9, lines 43-67). The motivation is the same as claim 4 above.

In regards to claim 13, Ikeda et al and Yasuda et al do not but Reid discloses an electrostatic actuator arrangement as set forth in claim 11, wherein the heater is electrically isolated from the second electrode and disposed proximate the probe (Fig. 1d). The motivation is the same as claim 4 above.

In regards to claim 19, Ikeda et al and Yasuda et al disclose the flexures connected to the second electrode. However, Ikeda et al and Yasuda et al do not but Reid discloses forming a heater on the second electrode; electrically isolating the heater from the second electrode and configuring the heater to be electrically connected with the second pair of flexures (Fig. 1d). Reid electrode is Ikeda et al second electrode, therefore, it would have been obvious to place the heater of Reid on Ikeda et al second electrode. The motivation would be the same as claim 4 above.

Response to Arguments

Applicant's arguments, see page 11, filed 12/15/09, with respect to the rejection(s) of claim(s) 1, 8, 15 and 21 under Ikeda in view of Reid have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ikeda in view of Yasuda.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINH T. NGUYEN whose telephone number is (571)272-5513. The examiner can normally be reached on 10:00am-7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN
March 25, 2010

/Wayne Young/
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